RECEIVED
CENTRAL FAX CENTER
APR 1 6 2007

AMENDMENTS

Please amend the claims as follows:

1. (previously presented) A method for measuring a volume flow parameter with acoustic energy, the method comprising:

(a) measuring the volume flow parameter as a function of acoustic energy transmitted from an annular configuration of elements of a transducer array; and

(b) performing two-dimensional ultrasound imaging with the transducer array;

wherein the transducer array comprises at least three rows of elements, the three rows being straight along an azimuth dimension and having rectangular elements;

further comprising:

(c) using a first group of elements from the at least three rows of elements into a ring annular element for (a);

(d) using a second group of elements from at least one of the at least three rows of elements into a center annular element within the ring annular element for (a); and

(e) using at least one of the at least three rows of elements for (b).

2. (original) The method of Claim 1 wherein (a) comprises:

(a1) transmitting a uniform far field acoustic pattern from the annular configuration of elements;

(a2) receiving a wide and a narrow far field acoustic pattern from the annular configuration of elements; and

(a3) calculating the volume flow parameter as a function of a first velocity and a first power associated with the uniform far field acoustic pattern and a second power associated with the narrow far field acoustic pattern.

3. (previously presented) A method for measuring a volume flow parameter with acoustic energy, the method comprising:

(a) measuring the volume flow parameter as a function of acoustic energy transmitted from an annular configuration of elements of a transducer array; and

PAGE 2/11 * RCVD AT 4/16/2007 6:18:43 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-3/3 * DNIS:2738300 * CSID:6509684517 * DURATION (mm-ss):03-08

(b) performing two-dimensional ultrasound imaging with the transducer array; wherein (b) comprises operating the transducer array as a 1.5D array.

4. (original) The method of Claim 1 wherein (b) comprises generating one of a B-mode and a Doppler mode image;

further comprising:

(c) positioning the transducer array relative to a vessel of interest based at least in part on the image.

5. (currently amended) The method of Claim 1 wherein (a) comprises calculating volume flow with uniform sensitivity technique ~~of the vessel~~.

6. (cancelled)

7. (previously presented) The method of Claim 1 further comprising:

(f) providing different transmit waveform polarity and apodization to different groups of elements for (a) simultaneously; and

(g) focusing as a function of apodization and delay along the at least one row of elements for (b).

8. (previously presented) A method for measuring a volume flow parameter with acoustic energy, the method comprising:

(a) measuring the volume flow parameter as a function of acoustic energy transmitted from an annular configuration of elements of a transducer array; and

(b) performing two-dimensional ultrasound imaging with the transducer array;

wherein (a) and (b) are performed with the transducer array having first and second rows extending a first length along an azimuth dimension and a third row extending the first length wherein the third row includes at least one kerf extending along the azimuth dimension less than the first length.

9. (previously presented) A system for measuring a volume flow parameter with ultrasound, the system comprising:

a transducer array having a plurality of elements;

a processor operable to calculate the volume flow parameter as a function of acoustic energy received with an annular configuration of elements of the transducer array; and

a display operable to display the volume flow parameter and a two-dimensional image responsive to acoustic energy received with the transducer array;

wherein the transducer array comprises at least four rows of elements in a fully sampled NxM grid, the annular configuration comprising a first group of elements from the at least four rows of elements arranged as a ring annular element and a second group of elements from at least one of the at least four rows of elements arranged as a center annular element within the ring annular element; and

wherein the two-dimensional image is responsive to at least one of the at least four rows of elements.

10. (original) The system of Claim 9 further comprising:

a first array interconnect capable of connecting the elements of the transducer array for two-dimensional imaging; and

a second array interconnect for connecting a first subset of the elements as an annular array for the annular configuration of elements.

11. (original) The system of Claim 9 further comprising:

a first Doppler path operable to obtain a first velocity and a first power associated with a uniform far field acoustic pattern as a function of the annular configuration; and

a second Doppler path operable to obtain a second power associated with a narrow far field acoustic pattern as a function of the annular configuration;

wherein the processor is operable to calculate the volume flow parameter as a function of the first velocity, the first power and the second power.

12. (original) The system of Claim 9 wherein the transducer array comprises a 1.5D array.

13. (original) The system of Claim 9 wherein the two-dimensional image comprises one of a B-mode and a Doppler mode image.

14. (original) The system of Claim 9 wherein the annular configuration of elements is operable to uniformly insonify a vessel with an aperture of similar azimuth and elevation sizes.

15. (cancelled)

16. (original) The system of Claim 9 further comprising:

a transmitter operable to simultaneously generate transmit waveforms with opposite polarity and different apodization for different annular elements of the annular configuration; and

a receiver operable to simultaneously form two beams in response to a transmission;

wherein the two-dimensional image is responsive to first signals from the receiver focused as a function of apodization and delay along at least one row of elements of the transducer array and wherein the processor is operable to calculate volume flow as a function of the two beams received in response to transmission by the different annular elements.

17. (original) The system of Claim 9 wherein the transducer array comprises first and second rows extending a first length along an azimuth dimension and a third row extending the first length wherein the third row includes at least one kerf extending along the azimuth dimension less than the first length.

18. (original) A transducer array for both measuring a volume flow parameter and imaging with ultrasound, the transducer comprising:

first and second rows of elements;

at least one kerf separating the first row of elements from the second row of elements, the at least one-kerf extending less than an azimuth length of the transducer array.

19. (original) The transducer array of Claim 18 further comprising at least third and fourth rows of elements, the first, second, third and fourth rows spaced along the elevation dimension in an order given by third, first, second and fourth, the third and fourth rows of elements extending the azimuth length of the transducer array, the first and second rows of elements extending a same azimuth length as the kerf, additional elements extending from the first row, second row and kerf from each azimuth side, the additional elements having an elevation width substantially equal to the elevation width of the first row, second row and kerf together.

20. (original) The transducer array of Claim 18 further comprising at least third, fourth and fifth rows, each of the rows extending the length of the kerf in the azimuth dimension; and

further comprising additional elements extending along the azimuth dimension from the first through fifth rows, an elevation width of the additional elements being greater than an elevation width of the elements of each of the first through fifth rows.